Data, Not Data: Uncovering the Implications of Data in Merger Reviews

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I. INTRODUCTION

Data is no longer a competitive consideration only for "big data" companies. Although digital services and the so-called FAANGs clearly rely on data as a vital competitive input, so too do firms across all areas of the economy. "FAANG" is an acronym that refers to the stocks of five prominent American technology companies: Facebook (now Meta), Amazon, Apple, Netflix, and Google (now Alphabet). From financial and telecommunications services, to retail, travel, and accommodation resources, to manufacturing and resource-based companies—all types of firms commonly collect an ever-growing volume of data and identify new opportunities to leverage their data to further business objectives. Advances in the collection and use of data present valuable opportunities for innovation and can support the creation of new products and services. Data consolidation, however, can also facilitate dominance and support the anticompetitive exercise of market power, creating prohibitive barriers to entry, leading to higher prices, lower product quality, diminished consumer privacy, and/or less innovation.

Because data is such a valuable asset, antitrust authorities should be carefully assessing the competitive implications of data aggregation even outside the narrow category of "big data" companies. Data aggregation must also be considered in the context of mergers involving the broad swath of firms that, while not marketing data or principally focused on generating data, are collecting, storing and, in many cases analysing, large volumes of data ancillary to their principal business activities.

Data-related analysis, however, presents several challenges for standard merger review. In particular, among other features, data-related analysis might not conform to a traditional "horizontal" or "vertical" competitive assessment, and the applicable theories of harm may be premised on the speculative prevention of potential future competition. In the context of an ever-evolving technological landscape and the potential for novel data applications, the assessment will often require consideration of non-price effects, potential consumer benefits, and gained efficiencies. The difficulty of this predictive exercise is evidenced by recent efforts by antitrust authorities to revisit past data-related mergers to retroactively remedy alleged competitive harms that were initially overlooked.

In the face of these challenges, this paper proposes a framework for data aggregation analysis in antitrust merger review. Section II sets out a three-step analytical model for identifying and assessing potential data-related competitive effects. Section III considers the efficacy of remedies in resolving any such anti-competitive effects.

The analytical model and considerations put forward in Sections II and III are intended to be applicable in the context of mergers involving not only typical "data firms," but also in the context of mergers between firms that generally are not categorized as such; these "non-data firm mergers" give rise to particular data-related considerations, in respect of which "data-firm" antitrust merger reviews provide useful guidance.

II. A THREE-STEP ANALYTICAL APPROACH TO DATA RELATED COMPETITION ISSUES

As articulated in the Horizontal Merger Guidelines of the U.S. Department of Justice and Federal Trade Commission (FTC), the animating principle of antitrust merger review is that "mergers should not be permitted to create, enhance, or entrench market power or to facilitate its exercise."[1] And "a merger enhances market power if it is likely to encourage one or more firms to raise price, reduce output, diminish innovation, or otherwise harm customers as a result of diminished competitive constraints or incentives."[2]

Broadly, data merely represents one of many means through which a merger may enhance a firm's market power. As with any other product or service, a merger may combine two previously competing suppliers of substitutable data sets—horizontal merger—or cause an upstream data supplier to become integrated with and captive to a single downstream user of that data—vertical merger. The acquisition of one firm's data, both in terms of a firm's existing data sets and ability to collect and analyze data on an ongoing basis by another, also has the

1. U.S. DEP'T OF JUST. & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES 2 (Aug. 19, 2010), https://www.justice.gov/atr/file/810276/download. While the legal test applicable to antitrust merger review varies among jurisdictions, the overall objective and animating policy behind antirust merger review is generally consistent with the articulation in the U.S. Horizontal Guidelines.

2. *Id.*

potential to enhance a firm's market power even where competitive interaction between the parties, from both a horizontal and vertical perspective, was limited or non-existent prior to the merger, akin to a conglomerate merger.[3]

Enforcers have traditionally focused on competitive effects of horizontal and vertical mergers in terms of the parties' outputs, that is, products or services offered. As a result, mergers that are likely to produce data-related competitive effects, even in the absence of horizontal or vertical competitive interaction between the parties, may avoid scrutiny under standard models of merger review. Moreover, identifying and addressing these effects is even more challenging in scenarios where one or both merging firms is not in the "data business," for example, grocery chains, airlines, accommodation providers, health services companies, or any other business whose data collection activities are ancillary to its main business. While antitrust agencies largely have the requisite authority to consider data-related competitive effects in the context of "non-data firm" mergers, to do so effectively, their substantive review procedures must be appropriately attuned to the potential for data-effects to arise.

We propose a three-part analytical model to facilitate the effective consideration of a merger's data-related competitive effects:

1. Data Identification Step: What, if any, data do the parties systematically collect?

2. Data Consolidation Step: What competitive opportunities would arise from (a) combining the two

3. In cases where competitive interaction between the parties was limited or non-existent pre-merger, the data being combined may either be similar (e.g., both parties may collect large volumes of similar consumer data from very different—and non-overlapping—retail activities) or distinct (e.g., one party may have access to consumer data and the other may have access to equipment performance data). In instances where the parties' data is similar, what sets these mergers apart from traditional horizontal or vertical mergers is that the parties' data do not interact with one another in the market. For example, in a merger between two non-competing retail firms that collect similar consumer data but do not—and absent the merger had no plans to—make this data available to any third parties, the parties would not be considered to overlap from an antitrust perspective either horizontally or vertically, notwithstanding similarities in their data sets.

parties' data and/or (b) giving each party access to the other party's data?

3. Data Implications Step: Are the merger-enabled opportunities likely to have an anti-competitive effect?

As firms across industries collect and exploit ever growing volumes of data, data becomes a valuable consideration in merger analysis. The proposed three-step approach is meant to assist in evaluating data issues irrespective of the type of merger—horizontal, vertical, conglomerate—and irrespective of the centrality of data to the merging firms' business activities.

A. Step 1: Data Identification Analysis

As a threshold matter, it is important for antitrust agencies to understand the data of merging parties. While this initial step is an information gathering exercise, it is not necessarily simple, nor should it be assumed that this information would be identified as part of an agency's review absent its direct consideration. The ancillary, non-monetized and potentially underutilized nature of a firm's data may limit their exposure in the normal course of a merger review, notwithstanding their significance.

In recent years, there has been great interest in the collection and use of data by behemoth technology companies, many of which permeate consumers' everyday lives. For mergers involving such firms, the parties' data are likely to be transparent. For example, in Google's 2020 acquisition of Fitbit, data collection was core to each party's business.[4] In this context, the need to engage in data identification and the results of that analysis are self-evident. However, firms across industries have developed significant data capabilities, such that data

4. The stated mission of Alphabet, Google's parent company, is to "organize the world's information and make it universally accessible and useful." ALPHABET, INC., ANNUAL REPORT FOR FY 2020 5 (2021), https://alpharesearch.io/platform/share?filingId=0001652044-21-000010#. Similarly, at the time of the merger's announcement, Fitbit described itself as being "powered by one of the world's largest databases of activity, exercise and sleep data." *Fitbit to Be Acquired by Google*, BUSINESSWIRE, (Nov. 1, 2019, 9:00 A.M.), https://www.businesswire.com/news/home/20191101005318/en/Fitbit-to-Be-Acquired-by-Google.

identification is no less important in circumstances where a firm's core activities are not data related.

At the data identification stage of the analysis, antitrust agencies should consider the data the merging parties collect regardless of its present utilization or existing competitive implications. Vast troves of data may be generated as an integral part of the operations of non-data firms (e.g., as a by-product of making a consumer sale or because of the functioning of a firm's product) or through a firm's deliberate efforts to augment its product portfolio, deliver additional customer value or enhance profitability. For example: Loyalty programs have become ubiquitous across the retail landscape.[5] While loyalty programs are of varying significance to firms' revenues and profitability, the use of these programs by retail businesses, across industries and retail models (i.e., both brick and mortar and online retail), results in the collection of large amounts of consumer data.[6] With the increasing adoption of the internet of things, a growing number of devices are collecting and transmitting a wealth of data. A 2020 study found that by 2025 there will be 55.6 billion connected devices worldwide and that the volume of data generated by internet of things devices will reach 73.1 zettabytes (each zettabyte is equal to one trillion gigabytes), up from 18.3 zettabytes in 2019.[7]

The focus of the data identification analysis is on the innate characteristics of the data available to a firm. In identifying the data in issue and to facilitate the data consolidation and data implication stages of the analysis, antitrust authorities have been urged to consider four key data characteristics: volume, velocity, variety, and veracity. "*Volume* relates to the quantity of data points in the dataset. *Velocity* relates to the 'freshness' of the data. *Variety* concerns the number of different

5. *See e.g.*, AUSTL. COMPETITION & CONSUMER COMM'N, CUSTOMER LOYALTY SCHEMES—FINAL REPORT (Dec. 2019), https://www.accc.gov.au/system/files/Customer%20Loyalty%20Schemes%20-%20Final%20Report%20-%20December%202019.PDF; BOND BRAND LOYALTY, THE LOYALTY REPORT (2021), https://info.bondbrandloyalty.com/loyaltyreport-2021 (fill out the US Edition form and click submit).

6. *See* AUSTL. COMPETITION & CONSUMER COMM'N, *supra* note 5, at 115.

7. Int'l Data Corp., *IoT Growth Demands Rethink of Long-Term Storage Strategies, Says IDC*, EE TIMES: ASIA (Jul. 29, 2020), https://www.eetasia.com/iot-growth-demands-rethink-of-long-term-storage-strategies/.

sources from which the data are gathered, and *veracity* the accuracy of the data."[8]

As a secondary consideration, the use to which data is presently being put and the value being derived from it by a merging party should also be identified. This information may provide useful context and a starting place for consideration of merger-enabled data-based competitive opportunities. But it should be kept in mind that the value of a firm's data may well exceed the value that firm is currently deriving from it. Rather, it is the volume, variety, velocity, and veracity of data that will inform its value.[9] The value of the parties' data, as it pertains to antitrust merger review, will be assessed in a forward-looking manner at the data consolidation stage of the analysis.

The pre-merger use of a firm's data may bear little or no relation to the merger-created opportunities. Continued advancements in data analysis, such as through natural-language processing, pattern recognition, and machine learning, allow data to be mined for valuable information.[10] The information that can be gleaned from the data and the competitive opportunities for which this information can be deployed change over time, varying according to both the circumstances of the holder of the data and the size and scope of the data set. The ability for data's value to shift creates an incentive for firms to collect and store data, notwithstanding that a firm may presently be making limited use or deriving limited value from it.[11] As such, it is important to give

8. Michal S. Gal & Daniel L. Rubinfeld, *Data Standardization*, 94 N.Y.U. L. REV. 737, 744 (2019).

9. *See, e.g.*, ORG. FOR ECON. COOP. & DEV., BIG DATA: BRINGING COMPETITION POLICY TO THE DIGITAL ERA—BACKGROUND NOTE BY THE SECRETARIAT 5–7 (Oct. 27, 2016), https://one.oecd.org/document/DAF/COMP(2016)14/en/pdf.

10. Daniel L. Rubinfeld & Michal S. Gal, *Access Barriers to Big Data*, 59 ARIZ. L. REV. 339, 342 (2017).

11. *See, e.g.*, Viktor Mayer-Schönberger & Yann Padova, *Regime Change? Enabling Big Data Through Europe's New Data Protection Regulation*, 17 COLUM. SCI. & TECH. L. REV. 315, 320 (2016).

> The shift in the value of data creates a very strong economic incentive in how data is being handled: it will be collected whenever there is a possibility to collect even though no concrete use case is evident; collection is opportunistic rather than purposeful.

careful consideration to a merger's data-related competitive opportunities even where, pre-merger, the data involved is competitively benign. The focal question antitrust authorities must answer at the conclusion of the data identification stage of the analysis is as follows: Do one or both of the merger parties have access to data that with respect to its content, volume, velocity, variety and veracity is materially and positively distinct from the data available to third parties?[12] Where the answer is "yes," the reviewing agency should proceed to the second stage of the analysis, data consolidation.[13]

B. Step 2: Data Consolidation Analysis

Having identified the parties' data resources, antitrust authorities must then consider the data-related competitive opportunities created by the merger. The data consolidation analysis captures two primary data-related merger implications: (a) the combination of previously independent data sets, or data combination, and (b) the transfer of data from one firm to another, or data transfer. A merger may facilitate new competitive opportunities and potentially enhance market power because of either or both events.

Traditional hallmarks for a merger's potential to produce competitive effects, such as pre-merger horizontal competition or vertical interaction between the parties, will not always be instructive for identifying the presence of data-related competitive opportunities. Rather,

> Similarly, there is a strong economic incentive to keep the data for as long as possible, and much beyond the initial use of it, to reuse it repeatedly as well as to combine it with other data.

Id.

12. In considering this question, it is not necessary that a party's data be strong in terms of each of volume, velocity, variety, and veracity. The importance of each of these characteristics will vary according to the data's particular application. "For example, where velocity is of small importance relative to the other three parameters, the data might not have to be constantly updated. Rather, old data can serve as a sufficiently effective input for firms competing in the market." Rubinfeld & Gal, *supra* note 10, at 347.

13. Where the answer is "no," it is not necessary to continue to the subsequent stages of the analysis, and rather, the merger would not be expected to have data related competitive implications.

firms with no pre-merger interaction may leverage one another's data post-merger—through data combination and/or data transfer—to material competitive consequence. As such, irrespective of the type of merger—horizontal, vertical, or conglomerate—it is important to at least consider the possibility of data consolidation at Steps 1 and 2 to be able to consider the implications of this consolidation at the third step.

1. Data Combination

With respect to data combination, it is important for antitrust authorities to consider potential competitive opportunities created by both enhanced data variety and enhanced data scale. A firm's data may be "like a single puzzle piece that taken by itself offers little value, but when combined with others to complete an image is turned into something precious."[14] The creation of a data set with more data of the same type—that is, more rows of the same data fields—may also have material competitive value:

> [T]he larger (size) the dataset the better. While this heavily depends on the application and the algorithm used, the performance—and therefore value—of a machine-learning algorithm tends to increase quickly with size ("number of rows") up to a point where it plateaus and then displays decreasing return to scale. While in some applications, the value of a 0.5% increase in accuracy is negligible, in others even the smallest increase in accuracy might make a difference. In general, the more complex an algorithm is and the richer the data it uses is, the more data ("rows") are needed to reach the level of decreasing returns.[15]

14. Mayer-Schönberger & Padova, *supra* note 11; *see also* JACQUES CRÉMER, YVES-ALEXANDRE DE MOTJOYE & HEIKE SCHWEITZER, COMPETITION POLICY FOR THE DIGITAL ERA 103 (2019), https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf. ("Combining datasets adds value, especially when the two datasets contain non-redundant information. This generates important competitive advantages.").

15. CRÉMER, DE MOTJOYE & SCHWEITZER, *supra* note 14, at 103–04.

2. Data Transfer

With respect to data transfer, competitive opportunities can arise even where only one party brings material data resources to a merger. For example, consumer data held by an online advertising firm would present very different competitive opportunities for a consumer packaged-goods company than it would for the online advertising firm.[16] Data transfer may also lead to competitive opportunities because of one party's ability to deploy an algorithm developed on its own data sets to perform tasks on the other merger party's data. For example, a social networking firm that has developed a highly effective facial recognition algorithm based on photographs uploaded and tagged on its platform may be able to deploy this same algorithm to the live video feed from a security firm's surveillance cameras.[17]

The data consolidation analysis requires careful reflection and an understanding of the data analysis tools available to the industry. While internal data sophistication will be an important capability for antitrust authorities at this stage of the analysis, engagement with market participants can also provide useful insight for identifying data-related competitive opportunities.[18]

16. In other words, data collected regarding consumer responses to different advertisements may be used by a consumer packaged-goods company as part of its product development process, whereas an online advertising business would have no similar, internal purpose for this data.

17. Gal & Rubinfeld, *supra* note 8, at 744–45.

18. Antitrust agencies have devoted notable attention to the digital economy in recent years and have taken steps towards developing data capabilities in this regard. For example, in May 2018, the United Kingdom's Competition and Markets Authority (CMA) appointed a Chief Data and Digital Insights Officer to head its new data unit. Competition & Mkts. Auth., *CMA Appoints Stefan Hunt to Top Digital Role*, GOV.UK (May 18, 2018), https://www.gov.uk/government/news/cma-appoints-stefan-hunt-to-top-digital-role. And in July 2019 the Canadian Competition Bureau created the role of Chief Digital Enforcement Officer. Competition Bureau Can., *George McDonald Joins the Competition Bureau as New Chief Digital Enforcement Officer*, CANADA.CA (July 2, 2019), https://www.canada.ca/en/competition-bureau/news/2019/07/george-mcdonald-joins-the-competition-bureau-as-new-chief-digital-enforcement-officer.html. While spurred by interest in the digital economy, the development of internal data expertise can provide useful insight for considering the data-related opportunities created by mergers across all sectors of the economy.

C. Step 3: Data Implications Analysis

Where a merger is found to give rise to material data-related competitive opportunities, it is then necessary to consider whether such opportunities have anti-competitive implications.

Depending on the specific circumstances of a merger, data consolidation may be anti-competitive, neutral, or pro-competitive. The role of pro-competitive effects in merger reviews varies materially by jurisdiction,[19] and it is beyond the scope of this Article to consider how antitrust authorities should weigh pro-competitive data-related effects. In brief, however, it is important to note that the enhanced power of larger and more varied data sets, or the transfer of underutilized data to another firm, can fuel innovative product enhancements, support more efficient resource allocation, or provide more customized and responsive customer service. As the Organisation for Economic Co-Operation and Development (OECD) has observed:

> Being able to harness Big Data can lead to important and positive gains for a business, which in turn may benefit consumers, employees, and society in general. Indeed, the use of Big Data for innovative and creative purposes, in a process known as data-driven innovation (DDI), allows companies to improve the quality of their products and develop entirely new services, by better understanding and targeting individual consumer needs.[20]

Considering the potential pro-competitive benefits of data consolidation, it is important to critically evaluate effects, without simply jumping to the conclusions that "big" should be equated with "bad." Below, we identify specific theories of harm to consider.

19. For example, in Canada, section 96 of the *Competition Act* provides for an explicit efficiencies defence, which prohibits the Competition Tribunal from making an order against a merger that will generate efficiencies more than its anti-competitive effects, regardless of whether those efficiencies accrue to consumers. In contrast, in the United States, efficiencies are recognized as a potential source of consumer benefit but have not been recognized as a defence to an otherwise anti-competitive merger. Competition Act, R.S.C. 1985, c. C-34.

20. ORG. FOR COOP. & DEV., *supra* note 9, at 7–8.

1. Data-Related Theories of Harm

Mergers of all types—horizontal, vertical, and conglomerate—and involving both data firms and non-data firms may result in competitive harm through data consolidation. Notably, data consolidation may result in competitive harm because of (a) the combination of two previously effective competitors, (b) foreclosure, (c) enhanced barriers to entry and (d) the depletion of privacy.

i. Removal of an Effective Competitor

Data–related competitive harm may result from the elimination of a substitutable data offering where two previously competing data suppliers merge into one.[21] Such a horizontal theory of harm will often fit squarely into antitrust authorities' standard merger review paradigms and may raise few analytical challenges relative to any other combinations of horizontally competing firms. However, traditional horizontal concerns are relatively unlikely to arise with respect to data consolidation that occurs in the context of non-data mergers. As described above, while non-data firms can hold valuable data for which a merger may present material competitive opportunities, the data, at the time of the merger, may not represent a market offering at all, let alone one that overlaps with the other merger party.

ii. Foreclosure

Data-related competitive harm may also occur because of vertical foreclosure, where a supplier of an essential data input merges with a downstream user of that data. Vertical foreclosure concerns are familiar to antitrust authorities and are not unique to the data implications of mergers. While antitrust authorities have recognized the existence of data-based vertical relationships and have found that these may give

21. Antitrust authorities have reviewed several mergers that raise potential concerns based on each party offering a data product that competed with the other. For an example in the U.S., see the FTC's 2014 challenge of CoreLogic's proposed acquisition of Data Quick and the DOJ's challenge of Bazaarvoice's proposed acquisition of PowerReviews. *In re* CoreLogic, Inc., No. 131-0199, 2014 WL 1245853, at *1 (F.T.C. Mar. 24, 2014).

rise to competitive harm, like traditional horizontal concerns, such data-related harm is unlikely to arise in the context of non-data mergers.[22] As with horizontal theories of harm, non-data firms are unlikely to, pre-merger, have been sources of essential data inputs for other firms.

iii. Erecting Barriers to Entry

The notion that data consolidation may create barriers to entry or forestall effective competition from existing suppliers by providing a firm with a competitive position that cannot be replicated by its rivals has been raised during data merger reviews and in recent studies of effective competition policy for the digital economy. For example, in connection with Google's 2008 acquisition of DoubleClick, third parties alleged that:

> [T]he mere combination of DoubleClick's assets with Google's assets, and in particular the combination of customer provided information CPI data (generated by the use of internet) obtained by both of them, would allow the merged entity to achieve a position that could not be replicated by its integrated competitors (mainly Yahoo! and Microsoft) or "point" product competitors. As a result of this combination, Google's competitors would be progressively marginalised which would ultimately

22. For example, see the European Commission's decision in Google's proposed acquisition of Fitbit. Case COMP/M.9660—Google/Fitbit, Comm'n Decision (Dec. 17, 2020) (summary at 2021 O.J. (C 194) 7), https://ec.europa.eu/competition/mergers/cases1/202120/m9660_3314_3.pdf. Among the conditions agreed to in connection with the European Commission's clearance of that transaction, Google committed to "maintain access to users' health and fitness data to software applications through the Fitbit Web API, without charging for access and subject to user consent." *Mergers: Commission Clears Acquisition of Fitbit by Google, Subject to Conditions*, EUR. COMM'N (Dec. 17, 2020), https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2484. More generally, potential foreclosure concerns have been dismissed in several data mergers on the basis that the parties' data was not essential considering the ready availability of similar data. See for example, the European Commission's decision in Microsoft's proposed acquisition of LinkedIn. COMP/M.8124—Microsoft/LinkedIn, Comm'n Decision ¶ 276 (June 12, 2016), https://ec.europa.eu/competition/mergers/cases/decisions/m8124_1349_5.pdf.

> allow Google to raise the prices for its intermediation services.[23]

While the European Commission rejected this contention in the Google/DoubleClick merger, more recently, the European Commission's report on *Competition Policy for the Digital Era* recognized that:

> Within the context of merger control, a combination of different data troves will raise competition concerns if this combination allows the dominant firm to extract information that provides for a significant competitive advantage but is impossible for competitors to replicate or if the combination may [be] the basis of the leveraging of market power.[24]

In line with this assessment, the Australian Competition & Consumer Commission (ACCC) in its statement of issues regarding Google's proposed acquisition of Fitbit identified data aggregation as an issue that may raise concerns, noting that:

> [T]he ACCC is concerned that the combination of the consumer data currently accessible to Google, its analytical capability and Fitbit's data, may result in Google developing a strong foothold in [data-dependent health services] emerging markets. Such a presence may make it commercially less attractive for potential providers to enter such markets, limiting the level of competition in these markets.[25]

As noted above, while Google and Fitbit are both data-focused firms, similar concerns can arise in the context of non-data mergers where the parties have significant data resources. This is particularly true for

23. Case No. COMP/M.4731—Google/Double Click, Comm'n Decision ¶ 359, (Mar. 11, 2008) (summary at 2008 O.J. (C 184)), https://ec.europa.eu/competition/mergers/cases/decisions/m4731_20080311_20682_en.pdf.

24. CRÉMER, DE MOTJOYE & SCHWEITZER, *supra* note 14, at 108–09.

25. AUSTL. COMPETITION & CONSUMER COMM'N, STATEMENT OF ISSUES: GOOGLE LLC—PROPOSED ACQUISITION OF FITBIT INC. ¶ 100 (June 18, 2020), https://www.accc.gov.au/system/files/public-registers/documents/Google%20Fitbit%20-%20Statement%20of%20Issues%20-%2018%20June%202020.pdf.

mergers involving parties in adjacent or already concentrated industries.

For example, consider a merger between a ride hailing app and a car manufacturer that produces Internet of Things-enabled vehicles that provide a continuous stream of data back to the manufacturer—for example, location data, performance metrics, etc.[26] Pre-merger, the parties do not compete with one another[27] and the car manufacturer does not monetize the data it collects or share it with third parties. Post-merger, the car manufacturer and the ride hailing app share their respective historical and real-time vehicle and trip data with one another. This combined data allows the ride hailing app to optimize routings and vehicle dispatch to provide a better passenger experience, and allows drivers to better anticipate maintenance needs, avoiding unexpected downtime. These developments clearly represent product enhancements. However, if the car manufacturer or the ride hailing app are dominant in their respective areas, such that they collect materially more data than their rivals, the merged firm may benefit from a competitive advantage that cannot be replicated, ultimately preventing effective competition and facilitating the eventual exercise of market power, such as, by charging higher fares.[28]

26. *See, e.g*, *How Uber Uses Rider Location Information*, UBER, https://help.uber.com/riders/article/how-uber-uses-rider-location-information-ios?nodeId=741744cb-125c-4efc-ab3f-4a977940ac87 (last visited October 13, 2022); Geoffrey A. Fowler, *What Does Your Car Know About You? We Hacked Chevy to Find Out*, WASH. POST (Dec. 17, 2019), https://www.washingtonpost.com/technology/2019/12/17/what-does-your-car-know-about-you-we-hacked-chevy-find-out/.

27. While the parties' products are used in conjunction with one another, there is no customer-supplier relationship (the ride hailing app's drivers both purchase cars and make their services available to the app, but each interaction is entirely independent of the other).

28. Unlike in the example presented above, the data related effects of mergers that result in barriers to entry may also manifest in markets in which neither party participated pre-merger. Data consolidation may allow the merged entity to enter a new market with a competitive advantage that cannot be replicated. For example, the merger of a grocery store and a healthcare company may lead the combined firm to introduce a cooking application that benefits from the combined data sets of the two firms.

iv. Depleting Privacy

The diminution of privacy represents another potential theory of harm that should be considered while assessing data implications. While antitrust authorities have acknowledged that privacy may constitute a non-price parameter of competition,[29] they have been highly circumspect in adopting privacy-based theories of harm. For example, in a 2019 address, FTC Commissioner Christine Wilson observed that "[i]f firms compete on the basis of privacy or data policies to attract customers, we might properly consider those aspects of non-price competition. But if firms do not compete that way, then they are appropriately omitted from our competition assessment."[30] Commissioner Wilson went on to note that "[w]e may consider privacy as a facet of non-price competition when the facts so warrant. To date, though, we have not brought a case on that basis."[31]

Similarly, where the European Commission has identified potential privacy harm in merger review, it has then largely deferred to privacy regulation, rather than addressing it as an antitrust matter.[32]

29. *See, e.g.*, Case COMP/M.7217—Facebook/WhatsApp, Comm'n Decision (Oct. 3, 2014), https://ec.europa.eu/competition/mergers/cases/decisions/m7217_20141003_20310_3962132_EN.pdf (European Commission's decision in Facebook's proposed acquisition of WhatsApp).

30. Christine S. Wilson, Comm'r, U.S. Fed. Trade Comm'n, Address at the American Enterprise Institute: Why We Should All Play by the Same Antitrust Rules, From Big Tech to Small Business 4 (May 4, 2019), https://www.ftc.gov/system/files/documents/public_statements/1527497/wilson_remarks_aei_5-4-19.pdf.

31. *Id*.

32. For example, with respect to its review of Google/Fitbit, the European Commission observed that its:

> [I]nvestigation found that Google will have to ensure compliance with the provisions and principles of the GDPR, which provides that the processing of personal data concerning health shall be prohibited, unless the person has given explicit consent. Such concerns are not within the remit of merger control and there are regulatory tools better placed to address them.

European Commission Press Release IP/20/2484, Mergers: Commission Clears Acquisition of Fitbit by Google, Subject to Conditions (Dec. 17, 2020),

But the wisdom of this approach has been questioned. For example, the United Kingdom's CMA, in its market study of online platforms and digital advertising observed that:

> Our concern is that such platforms have an incentive to interpret data protection regulation in a way that entrenches their own competitive advantage, including by denying third parties access to data that is necessary for targeting, attribution, verification and fee or price assessment while preserving their right to use this data within their walled gardens.[33]

While the ongoing discourse regarding the role of privacy in antitrust merger reviews has been focused on transactions involving digital platforms and tech giants, these considerations may also be engaged by, and are worthy of consideration in the context of, mergers between non-data firms that will give rise to data consolidation. For example, a merger between a grocery store chain—which, in addition to its main business activity of selling groceries also tracks consumer purchasing behaviour through a loyalty program—and a supplier of Internet of Things enabled home healthcare equipment, such as scales, blood pressure monitors and insulin pumps, may lead to an intrusive combination of data sets. Such an intrusive combination might involve matching an individual's grocery shopping habits to their health and wellness in a manner not dissimilar to the combination of Google's and Fitbit's rich consumer datasets.

Whether such privacy implications of data consolidation in non-data mergers give rise to competitive harm—namely the degradation

https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2484. Similarly, in its review of Facebook/WhatsApp, the European Commission observed that "Any privacy-related concerns flowing from the increased concentration of data within the control of Facebook as a result of the Transaction do not fall within the scope of the EU competition law rules but within the scope of the EU data protection rules." Case COMP/M.7217—Facebook/WhatsApp, Comm'n Decision ¶ 164 (Oct. 3, 2014), https://ec.europa.eu/competition/mergers/cases/decisions/m7217_20141003_20310_3962132_EN.pdf.

33. COMPETITION & MKTS. AUTH., ONLINE PLATFORMS AND DIGITAL ADVERTISING: MARKET STUDY FINAL REPORT ¶ 48 (2020), https://assets.publishing.service.gov.uk/media/5efc57ed3a6f4023d242ed56/Final_report_1_July_2020_.pdf.

of privacy standards resulting in an overall reduction to product quality or an increase in non-monetary cost through the requirement of consumers to provide more data to access a product or service—and the degree of any such harm, is a factual matter that must be considered based on the specifics of each case. But generally, in the context of non-data firms, privacy considerations can be expected to rise to the level of competitive harm, separate from established privacy regulatory regimes, fairly rarely. Such concerns are most likely to manifest in circumstances where one or both of the parties collect particularly sensitive information, such as personal health data, and hold a dominant position in an industry with barriers to entry, such that the loss of privacy may constitute a material degradation of product quality, which would not be defeated through competitive higher quality—that is, more privacy respecting—products.

2. Likelihood of Competitive Harm

While antitrust merger review is inherently prospective and a form of *ex ante* regulation, where data is concerned, the analysis is further complicated by the fact that the anti-competitive conduct may depend on novel data applications, the potential for enhanced data sets to yield unproven insights, and the absence of an objective metric for assessing relative data strength.[34] This is particularly true for competitive harm premised on barriers to entry or loss of privacy, which are generally based on the possibility of speculative future behaviour, that is, the merger, through data consolidation, will facilitate and incentivize anti-competitive business conduct and strategies not possible pre-merger. Moreover, these challenges are heightened in the context of non-data mergers with data implications as such implications will generally arise from the utilization of data in ways materially different from the parties' pre-merger practices.

Related to the increased prominence of data, particularly in connection with large digital platforms, in various jurisdictions,

34. For example, antitrust authorities will often rely on market shares based on sales data or industry reports to assess the relative strength of market participants and the likelihood that the merger will result in market power. Generally, no similar objective metric will be available for comparing the data of the merged firm to that of its rivals.

consideration is currently being given to altering the legal test applicable to antitrust merger challenges. For example, in the United Kingdom, the CMA's Digital Markets Taskforce has recommended that the standard of proof be lowered for mergers involving firms with "strategic market status," from requiring proof that a substantive lessening of competition is "likely" to requiring only that there is a "realistic prospect" that this will occur.[35] In the United States, the chair of the Senate's Antitrust Subcommittee, Senator Amy Klobuchar, introduced a bill in February 2021 to "overhaul and modernize" U.S. antitrust law, which, among other things, would lower the standard of proof applicable to merger challenges under the Clayton Act from "substantially lessen[ing]" competition to "creat[ing] an appreciable risk of materially lessening competition" and, for certain mergers, would shift the burden of proof from the government to the merger parties.[36]

As described above, data consolidation can generate substantial pro-competitive effects. As such, governments should proceed cautiously before deciding to recalibrate the standard of proof to be applied to data-related mergers. While it is necessary to be rigorous in the analysis, existing tools can provide a starting point for evaluating data-related implications. In particular, the parties' internal business documents, information gathered from market participants, and economic analysis of the incentives related to the opportunities identified as part of the data consolidation analysis can all serve as evidence to demonstrate whether identified data implications are in fact likely, or, rather, constitute mere speculative opportunities. However, the challenges posed by data consolidation analysis, including the typically non-rivalrous nature of data and the prevalence of non-price effects—such as with respect to privacy degradation, provide opportunities for antitrust authorities, industry participants, and economists to consider and

35. COMPETITION & MKTS. AUTH., A NEW PRO-COMPETITION REGIME FOR DIGITAL MARKETS: ADVICE OF THE DIGITAL MARKETS TASKFORCE 63 (2020), https://assets.publishing.service.gov.uk/media/5fce7567e90e07562f98286c/Digital_Taskforce_-_Advice.pdf.

36. *Senator Klobuchar Introduces Sweeping Bill to Promote Competition and Improve Antitrust Enforcement*, SENATOR AMY KLOBUCHAR: NEWS RELEASES (Feb. 4, 2021), https://www.klobuchar.senate.gov/public/index.cfm/2021/2/senator-klobuchar-introduces-sweeping-bill-to-promote-competition-and-improve-antitrust-enforcement.

develop alternative models and methods for weighing and quantifying competitive effects.

III. REMEDIES

Where the three-step analytical process leads an antitrust authority to identify anti-competitive data implications, remedies must then be considered. As set out in Section II, data complicates the authorities' approach to mergers, and the calibration of remedies is no exception.

Many contend that traditional remedies, both structural and behavioral, are unable to tackle the unique challenges associated with data-related harms and have advocated for new rules entirely.[37] Others have advocated for the introduction of conditional remedies—especially remedies which only apply under certain triggering circumstances—to eliminate the risks of under- and over-enforcement.[38] Although these proposals warrant discussion, we argue that regulators' existing remedial powers are sufficient to tackle data issues in most instances.

A. Traditional Remedial Approach

Generally, where a transaction is deemed anticompetitive, authorities will enter discussions with the parties to negotiate an effective

37. *See, e.g.*, Eleanor Fox & Harry First, *We Need Rules to Rein in Big Tech*, COMPETITION POL'Y INT'L (Oct. 27, 2020), https://www.competitionpolicyinternational.com/we-need-rules-to-rein-in-big-tech/ (arguing that divestitures were proving ineffective at tackling data-related harms in the context of digital platform consolidation). The authors proposed six new regulations to govern conduct of leading digital platforms, which included restrictions on platform gatekeepers giving preferred position or otherwise advantaging their own business, requirements for interoperability between platforms, and preventing the blocking of data portability. *Id.*

38. *See, e.g.*, Laurence Bary & Frédéric de Bure, *Disruptive Innovation and Merger Remedies: How to Predict the Unpredictable?*, CONCURRENCES (Sept. 2017), https://www.concurrences.com/en/review/issues/no-3-2017/articles/disruptive-innovation-and-merger-remedies-how-to-predict-the-unpredictable. Bary & de Bure contend that a conditional commitment could have been effectively imposed to the *Facebook/WhatsApp* case, where the potential harms were known to the European Commission but the likelihood and surrounding circumstances of the materialization of the harms was unknown. *Id.*

remedy package that eliminates the competitive harm.[39] Of near-equal concern to antitrust authorities when weighing possible remedies, however, is minimizing any ongoing enforcement obligations. The longer and more complex the remedy process, the greater the strain on their staff and the public purse.

For these reasons, authorities have long-favored structural remedies, such as the divestiture of a business unit or specific assets.[40] Where a merger is found to eliminate a significant competitor in the market, structural remedies effectively address the problem by creating or enhancing a competitor to discipline the merged entity. In cases of horizontal mergers in particular, structural remedies are considered a "one-off" solution that eliminates competitive concerns by transferring the overlapping business or assets to a third party without requiring continued monitoring.

By contrast, behavioral remedies are less certain and less conclusive and, therefore, less desirable. A behavioral remedy addresses the anticompetitive harm stemming from the merger by restricting or otherwise altering the behavior of the merging firms for a set period. From the perspective of antitrust authorities, behavioral remedies are difficult to "get right," whether with respect to gauging the appropriate terms and duration of the remedy or the time and expense associated with ongoing monitoring of the merged entity's compliance. The longer that the remedy must be in place to address the competitive harm, the more costly. Moreover, there may be indirect costs to the merged entity as it attempts to achieve legitimate business objectives within the parameters of the behavioral remedies in place or, in some jurisdictions, costs to competing firms who are tasked with holding the merged entity accountable. Accordingly, antitrust authorities often

39. Where negotiations fail, they may seek to have a remedy imposed through the applicable enforcement framework. Such a remedy may, in the most extreme situation, prohibit (or unwind) a merger outright.

40. *See, e.g.*, Commission Notice on Remedies Acceptable Under Council Regulation (EC) No 139/2004 and Under Commission Regulation (EC) No 802/2004, 2008 O.J. (C 267), https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52008XC1022%2801%29; *Information Bulletin on Merger Remedies in Canada*, CAN. COMPETITION BUREAU (Sept. 22, 2006), https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/02170.html.

espouse that behavioral remedies are only to be adopted where an effective structural remedy is unavailable.[41]

In practice, however, the structural-behavioral dichotomy is more ambiguous. So-called hybrid remedies are not uncommon. Hybrid remedies refer to a predominantly structural remedy, with a behavioral component. In such cases, the behavioral component is typically short-term and designed to supplement or complement the core structural remedy. For example, the merged entity may be required to enter short-term supply arrangements on behalf of the buyer of the divested business when the buyer requires time to establish its own supply management capabilities, such that the divested business is immediately competing against the merged entity. In other cases, a remedy may be "quasi-structural" in nature, involving a change to the market structure without a divestiture, such as the compulsory licensing of intellectual property or the removal of anticompetitive contractual clauses.[42]

B. The Role of Structural Remedies in Resolving Data Concerns

The major advantage of structural remedies, namely that they attempt to eliminate the anticompetitive problem and incentive at its root cause, remains applicable in several traditional data-firm mergers, where data is the product of at least one of the parties and not merely a by-product. This is especially true where the merger's data implications arise from horizontal competition or vertical interaction between the parties. The obligation to divest the relevant, and often market-specific or exclusive, information in these cases may eliminate the data-related harm.[43]

41. *See, e.g.*, U.S. DEP'T OF JUST., ANTITRUST DIVISION, MERGER REMEDIES MANUAL (2020), https://www.justice.gov/atr/page/file/1312416/download.

42. *See Information Bulletin on Merger Remedies in Canada*, CAN. COMPETITION BUREAU (Sept. 22, 2006), https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/02170.html (providing a more detailed overview of remedy types).

43. For example, in 2008, the FTC challenged Dun & Bradstreet's completed acquisition of Quality Education Data (QED), the largest competitor to Dun & Bradstreet's MDR division, resulting in the merged entity controlling more than 90% of the market for K–12 educational marketing data. *See* Press Release, Fed. Trade Comm'n, FTC Challenges Dun & Bradstreet's Purchase of Competing Education Data Provider (May 7, 2010), https://www.ftc.gov/news-events/press-

With that said, strictly structural remedies may be ineffectual and/or impractical in resolving data-related harms, both in the context of data mergers and non-data mergers, where data is not the product of either party, but there is competitive harm associated with the merger's implication for data generated as a by-product of the merger parties' operations.

First, while a divestiture of datasets may prevent the merged entity from enhancing its market power through data consolidation, the transfer of the data alone may not enhance the competitive position of the divestiture buyer such that it can act as a constraint on the merged entity's power. In many instances, there may not be an appropriate buyer for the divested data that is able to swiftly make use of the data such that the data will enhance its competitive position vis-à-vis the merged entity. Therefore, the divestiture would be inadequate without behavioral supplements, which are considered in further detail below.

Second, implementing structural remedies in data cases may result in arbitrary boundaries of separation.[44] Data has driven technological change at an unprecedented rate, resulting in often unforeseen

releases/2010/05/ftc-challenges-dun-bradstreets-purchase-competing-education-data. The collected data was used to sell books, educational materials, and related products to educators. *Id.* The FTC found that, despite its relatively low dollar value, the transaction created a near-monopoly such that competition decreased "dramatically" in the marketplace. *Id.* It found that a new entrant or expanded competitor would require an updated database with comparable size, breadth, and scope of market data to that held by QED pre-merger to effectively compete with Dun and Bradstreet post-implementation. *See In re* The Dunn & Bradstreet Corp., No. 9342 (F.T.C. Sept. 10, 2010), https://www.ftc.gov/sites/default/files/documents/cases/2010/09/100910dunbradstreetdo.pdf. No such competitor or potential competitor existed. *Id.* Accordingly, Dun & Bradstreet agreed to divest its MDR database and certain associated intellectual property to a fringe competitor. *Id.* As a result, the fringe competitor was newly positioned to provide a range of data products that were at least equivalent to those once provided by QED. The structural remedy was therefore found to be effective. *Id.*

44. Francesco Ducci & Michael Trebilcock, *Structural vs. Behavioral Remedies in Big Tech Sectors*, COMPETITION POL'Y INT'L: ANTITRUST CHRON. 3 (April 2020), https://www.competitionpolicyinternational.com/wp-content/uploads/2020/04/CPI-Ducci-Trebilcock.pdf; s*ee also* Jörg Hoffman & Germán Johannsen, *EU-Merger Control & Big Data on Data-Specific Theories of Harm and Remedies* 53 (Max Planck Inst. of Innovation & Competition, Research Paper No. 19-05, 2019).

developments and innovations, making it harder to define the market boundaries necessary to craft an effective divestiture package. Antitrust authorities may avoid the predictive exercise and delineate boundaries based on the current dynamics, which may prove to be quickly irrelevant, or they may be forced to engage with predicting innovative data uses that to the layman, and often experts, are unpredictable. Neither approach offers the certainty characteristic of a structural remedy and both approaches carry a risk of under- or over-enforcement. While under-enforcement would fail to meet the standard of a remedy, that is, to eliminate the competitive harm and restore competition, over-enforcement may harm the potential economies of scale and scope that drive efficient integration and spur innovation and quality improvements.

Third, a data divestiture may limit the concentration of data in the hands of a single firm in the *short* term, thereby preventing the firm from capitalizing on the data combination for a period post-implementation. However, where the parties' accumulation of data is continuous, which is inevitably the case where the collection of data is a by-product of the firm's primary operations, a one-off divestiture immediately preceding implementation will not prevent the merged entity from replicating its divested data through its continued collection and combining its growing datasets to derive value and competitive advantage.

Similarly, the continued collection of data limits the utility of a divestiture in addressing privacy-related harms where the merging entities' datasets contain personal information.[45] A data divestiture simply delays the concentration of personal data, preventing the merged entity from immediately getting a fuller picture of a consumer through the combination of existing datasets. However, without ongoing parameters on their data collection and/or combination, the merged entity will over time re-accumulate critical masses of consumer data that, when combined, will provide greater insight into the characteristics of individual consumers. The transfer of personal data from the merged entity to a divestiture buyer moreover may trigger its own privacy concerns, as individuals may not have consented to the transfer of their data nor to any terms of use by the new host. Should consent be

45. *See* Hoffman & Johannsen, *supra* note 44, at 42–43 (discussing issues surrounding personal data collection).

required, and enough individuals refuse to consent to the transfer, this may also impact the benefit of the divestiture.

In short, data-related issues may negate the principal advantages of structural remedies, such that antitrust authorities may be forced to consider alternative solutions more often than not.

C. The Role of Behavioral Remedies in Resolving Data Concerns

Though the appeal of a structural remedy lies in its clean-cut qualities, data issues demand flexible solutions. As discussed above, data mergers often confront antitrust authorities with non-horizontal and novel theories of harm for which purely structural remedies may not eliminate the competitive harm. Behavioral remedies, or behavioral complements to structural remedies, can be more dynamic, can minimize the costs of separation, and can preserve economies of scale and scope and the efficiencies that flow therefrom. Critically, behavioral remedies may also better eliminate the competitive harm than their structural counterparts.

In many cases, it is not an either-or scenario—the efficacy of a structural remedy may be enhanced by supplementary behavioral conditions. For instance, as referenced above, one of the limitations of a structural remedy may be that the only acceptable buyer lacks the necessary expertise or resources to derive value from the datasets. As a result, the merger's competitive harm is not eliminated by the divestiture alone. In these instances, a behavioral component may be required to supplement the core structural remedy to ensure that the divestiture buyer is able to utilize the data, enabling it to act as a constraint on the merged entity's ability to dominate the market.

To use a traditional data firm example, the FTC determined in CoreLogic/DataQuick that the combination of the two real estate national assessor and recorded bulk data businesses would eliminate one of only three principal providers, increasing the risk of coordination between the two remaining firms. To ensure there was effective remaining competition post-implementation, the FTC required that CoreLogic license several datasets to Renwood RealtyTrac, a firm active in an ancillary sector, offering an online marketplace of foreclosure real property listings and providing national foreclosure data services to real estate consumers, investors, and professionals. However, the FTC did not consider a mere divestiture to be sufficient in establishing

Renwood RealtyTrac as a vigorous competitor in the short- or long-term since Renwood RealtyTrac was not sufficiently equipped to make use of the data, nor did it have comparable channels for ongoing data collection. As such, the FTC also imposed continuing obligations on the merged entity for a transition period; namely, it required that CoreLogic provide Renwood RealtyTrac with the support necessary to derive value—and therefore, competitive advantage—from the datasets, including providing the requisite software necessary to view and manipulate the data and allowing Renwood RealtyTrac to access knowledgeable employees for assistance relating the collection, manipulation, storage and provision of the divested data. Moreover, CoreLogic was required to provide Renwood RealtyTrac with updated data during the transition period to guarantee Renwood RealtyTrac's access to pertinent data as it worked to establish its own collection, manipulation, storage, and provision capabilities. The combined remedy package provided Renwood RealtyTrac with the tools necessary to exercise immediate competitive discipline on the merged entity post-implementation.[46]

Though this example relates to the merger of two data firms, the advantages of a hybrid remedy would similarly apply to data issues in the non-data firm context. Hypothetically, if two major men's razor subscription companies—Baby Face and 5 O'Clock—merged leaving only one alternative competitor in the relevant market, the antitrust authority may challenge the transaction as being anticompetitive, not just because of the horizontal overlaps in razor subscription services and the potential for coordination between the two remaining providers, but because of the barriers created by the consolidation of the merging firms' data. Baby Face and 5 O'Clock may be able to combine their respective subscribers' data to better understand subscriber demographics, spending patterns, product preferences, responsiveness to advertising and promotional content, and more, leveraging these insights to further expand their subscriber base and extract more spending from existing subscribers. As a result, not only will the merged entity be the dominant firm in the market with the most subscribers, their data advantage may create a competitive barrier that would be

46. *In re* CoreLogic, Inc., No. C-4458 (F.T.C. May 20, 2014), https://www.ftc.gov/system/files/documents/cases/140521corelogicdo.pdf.

insurmountable for new entrants. The antitrust authority may therefore mandate that the merged entity divest 5 O'Clock's subscribers *and* its data to a suitable firm. As there is only one remaining competitor, it may seek to establish a new competitor through the divestiture to restore the three-player dynamic in the market. If the suitable buyer is, for example, a mid-sized razor manufacturer and supplier that currently sells its products through retail channels, the buyer would not have subscribers or subscriber data, nor be capable of collecting, manipulating, and storing subscriber data. Accordingly, the antitrust authority may mandate that the merged firm both divest subscribers and their data. And the authority may require the merged firm provide the divestiture buyer with requisite software and technical support to derive value from the existing data and any future data accumulation, allowing the buyer to become a viable alternative.

In other cases, purely behavioral remedies may be necessary to prevent under- or over-enforcement. For instance, given the shortcomings of divestitures in cases where data accumulation is continuous, the antitrust authority may instead impose a "hold separate" requirement on the merged entity. In effect, this would prevent the merged entity from combining the data of the two merging parties or impose restrictions on the combination such that any harm was mitigated.[47] Information collection by each business unit would remain in silos. This may effectively address privacy harms, by preventing the merged entity from getting a better sense of the individual through the combination of two datasets. Moreover, where volume of data is a critical barrier to entry or expansion for nascent competitors, "hold separate" agreements

47. Some regulators have imposed iterations of "hold separate" agreements, allowing firms to combine their datasets of personal information only with individuals' consent, limiting the remedy's efficacy. Stanley M. Besen & Philip L. Verveer, *Competition and Data: Potential Remedies*, 21 WAKE FOREST J. BUS. & INTELL. PROP. 102, 118 (2021). For example, the German competition authority, Bundeskartellamt, allowed Facebook to combine data from WhatsApp and Instagram, with the consent of users. *Id.* This was criticized as being ineffective due to Facebook's undue influence on its users, where users' use of the social networks would be restricted where consent was withdrawn or modified, which induced users to provide broad consent to data sharing. *Id.* Wherever a merged firm has the ability and incentive to exercise influence over its customers' provision of consent, consent exceptions to a "hold separate" agreement may create a loophole that can be readily exploited. *Id.*

may assist in alleviating this barrier by restricting the volume of data eligible for combination.

Of course, the imposition of "hold separate" remedies may have limitations. A common concern is that creating silos for each business's data collection may reduce the quality of the services that can be provided by the merged entity, especially where the separated datasets had significant complementarities. Efficiencies or innovation that may have been possible through data combination will not be realized.[48] On the other hand, it may successfully remedy the harm; the trade-off must be weighed by the antitrust authorities.

Barriers may similarly be alleviated by the imposition of data sharing requirements. Data sharing may be imposed upon pre-existing datasets through a one-off agreement or may be imposed upon ongoing data accumulation through the continuance of existing data sharing arrangements or the negotiation of new ones. Where certain data is a necessary input and vertical foreclosure is predicted, mandated data sharing may address the harm. In addition, where data asymmetry between the merged entity and competitors or nascent competitors is expected to harm competition, data sharing may ensure that competitors have access to data sufficient to compete effectively; though additional technical supports may be needed to ensure competitors are able to derive utility from the data. Mandated data sharing has the additional advantage of not impacting the merged entity's ability to capitalize on efficiencies resulting from the data combination.

Data sharing is not without complications. It may implicate the same privacy concerns as a data divestiture, as raised above, where the shared data includes personal information. Consideration must therefore be made to consent requirements and how these requirements may impact the potential efficacy of the remedy. In addition, data sharing may reduce the incentives for the firms receiving the data to develop their own data collection analysis systems, which may hamper innovation. Lastly, antitrust authorities in implementing and monitoring a data sharing remedy package must guard against the sharing of competitively sensitive information between the parties who are using the remedy to facilitate collusion; this compounds the burden of authorities' monitoring responsibilities.

48. *Id.* at 120.

Where data combination may reinforce barriers to entry and either create or exacerbate existing switching costs, it may be appropriate to enable data sharing through interoperability requirements. Facilitating data portability would mitigate any "winner-takes-all" dynamics of industries characterized by stickiness, such as financial services. By easing the burden of moving data between service providers, consumers may be less likely to rely solely on a single firm and may be motivated to switch should they experience a degradation in quality or increase in price. Interoperability has the added advantage of being consistent with privacy requirements, allowing users to control how, when, and with whom their data gets shared.

In summary, hybrid or behavioral remedies may offer more efficacious solutions than structural remedies in response to data consolidation-based harm. With that said, the accompanying monitoring obligations are a drawback that antitrust authorities must weigh in each context. Where a behavioral commitment directly benefits a third party—like in the case of a data sharing agreements—it is easier to monitor compliance. However, for internal obligations, the antitrust authority and the merged entity may be bound by compliance reporting obligations for years to come.[49]

IV. CONCLUSION

Data is ubiquitous in every industry, and its impacts are therefore relevant to an increasing number of merger reviews. Data is a vital competitive input not just for the FAANGs of the world but for more "traditional" industries as well. Telecommunications firms, retail chains, banks, healthcare providers, airlines, and mining companies alike are all accumulating data and identifying new opportunities to leverage this data to further their business objectives. Technological advances in the collection and manipulation of data present valuable opportunities for innovation and can generate significant efficiencies for the business. However, depending on the volume, velocity, variety,

49. In rare cases, reporting obligations may be in place indefinitely. For example, the Canadian Competition Bureau allowed the "Transborder Joint Venture" between Air Canada and United Continental to proceed but imposed annual reporting obligations on the parties for the duration of the joint venture. *See Air Canada & United Contental – Consent Agreement*, CT-2011-004.

veracity, and value of the data collected and the complementarity nature of the two merging parties' datasets, data may directly contribute to a firm's ability to accrue market power post-implementation.

When evaluating a merger, antitrust authorities must grapple with this complex and fluid landscape to identify any resulting competitive harms and craft the appropriate remedies. Despite the obvious challenges introduced by data considerations, we believe that the principles-based nature of most antitrust regimes and the existing tools in their respective toolboxes are sufficiently flexible for data-related theories of harm.